

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Patricia L. Prior (Reg. No. 33,758) on February 23, 2009.

The application has been amended as follows:

In the Specification:

- Replace paragraph 0001 on page 1 with:

--This application is a continuation-in-part of U.S. Application Serial No. 10/269,800, filed October 14, 2002, now abandoned. The disclosure of which is incorporated herein by reference.--

- Replace paragraph 0017 on page 5 with:

--The most preferred two-part epoxy adhesive free of nonylphenol has:

a) a resin component free of nonylphenol comprising a mixture of:

45-55% Bisphenol A epoxy resin,

8-15% internally flexibilized Bisphenol A type epoxy resin,

10-20% dinonylphenol base plasticizer/accelerator,

0.3-0.6% epoxide functional silane base coupling agent,

15-25% limestone filler,

- 0.5-2% white pigment and
- 4-6% thixotropic agent, and
- b) a hardener component free of nonylphenol comprising a mixture of:
 - 55-65% amine terminated butadiene acrylonitrile adduct,
 - 7-15% unmodified glycol ether base aliphatic amine,
 - 5-8% modified AEP aliphatic amine,
 - 5-8% tertiary amine accelerator,
 - 8-15% dinonylphenol plasticizer/accelerator, and
 - 4-6% thixotropic agent.--

In the Claims:

2. (Canceled)

20. (Currently Amended) The two-part epoxy adhesive of claim 55 wherein after curing the epoxy adhesive has a tensile elongation at room temperature of greater than 120%.

22. (Currently Amended) The two-part epoxy adhesive of claim 58 wherein after curing the epoxy adhesive has a tensile elongation at room temperature of greater than 80%.

23. (Currently Amended) The two-part epoxy adhesive of claim 22 comprising:

- a) the resin component free of nonylphenol comprising a mixture of:
 - 45-55% Bisphenol A epoxy resin,

- 8-15% internally flexibilized Bisphenol A type epoxy resin,
 - 10-20% dinonylphenol plasticizer/accelerator that acts as both a plasticizer and an accelerator,
 - 0.3-0.6% epoxide functional silane base coupling agent,
 - 15-25% limestone filler,
 - 0.5-2% white pigment, and
 - 4-6% thixotropic agent, and
- b) the hardener component free of nonylphenol comprising a mixture of:
- 55-65% amine terminated butadiene acrylonitrile adduct,
 - 7-15% unmodified glycol ether base aliphatic amine,
 - 5-8% modified AEP base aliphatic amine,
 - 5-8% tertiary amine accelerator,
 - 8-15% dinonylphenol plasticizer/accelerator that acts as both a plasticizer and an accelerator, and
 - 4-6% thixotropic agent.

25. (Canceled)

41. (Currently Amended) The process of claim 59 wherein said hardener component free of nonylphenol comprises by weight:

8-15% dinonylphenol plasticizer/accelerator, that acts as both a plasticizer and an accelerator, and

1-8% thixotropic agent.

43. (Currently Amended) The process of claim 59 wherein:

a) said resin component free of nonylphenol comprises a mixture of:

45-55% Bisphenol A epoxy resin,

8-15% internally flexibilized Bisphenol A type epoxy resin,

10-20% dinonylphenol plasticizer/accelerator that acts as both a plasticizer and an accelerator,

0.3-0.6% epoxide functional silane base coupling agent,

15-25% limestone filler,

0.5-2% white pigment and

4-6% thixotropic agent, and

b) said hardener component free of nonylphenol comprises a mixture of:

55-65% amine terminated butadiene acrylonitrile adduct,

7-15% unmodified glycol ether base aliphatic amine,

5-8% modified AEP base aliphatic amine,

5-8% tertiary amine accelerator,

8-15% dinonylphenol plasticizer/accelerator that acts as both a plasticizer and an accelerator, and

4-6% thixotropic agent.

55. (Currently Amended) A two-part epoxy adhesive comprising:

a) a resin component comprising a mixture of epoxy resin, and an internally flexibilized epoxy resin, and

b) a hardener component consisting essentially of a mixture by weight of:
20-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts,
5-30% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine,
10-50% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine,
0-15% unmodified or modified polyamide,
1-10% accelerator, wherein said accelerator comprises a tertiary amine accelerator, and
optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator;

wherein a reactive mixture of said resin component and said hardener component has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours;

wherein after said resin component and said hardener component are mixed and reacted the cured epoxy adhesive has a tensile elongation at room temperature of greater than 30%.

56. (Currently Amended) A process of adhering at least two substrate surfaces to each other comprising:

intercalating between said surfaces an adhesive comprising a reactive mixture of:

a) a resin component comprising a mixture of epoxy resin, and internally flexible epoxy resin, and

b) a hardener component consisting essentially of a mixture by weight of:

20-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts,

5-30% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine,

10-50% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine,

0-15% unmodified or modified polyamide,

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator, and optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator; and

allowing said adhesive to cure,
wherein said reactive mixture has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours; whereby said cured adhesive has a tensile elongation at room temperature of greater than 30%.

57. (Currently Amended) A process for making a two-part epoxy adhesive comprising:

preparing a resin component by mixing an epoxy resin, an internally flexibilized epoxy resin, a plasticizer/accelerator that acts as both a plasticizer and an accelerator, a coupling agent, fillers, and a thixotropic agent, and

preparing a hardener component consisting essentially of a mixture by weight of:

20-80% flexibilizer,

5-45% unmodified aliphatic amine,

0-50% modified aliphatic amine,

0-15% unmodified or modified polyamide,

1-10% accelerator, and

optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator;

wherein a reactive mixture of said resin component and said hardener component has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours.

58. (Currently Amended) A two-part epoxy adhesive comprising:

a) a resin component comprising a mixture of epoxy resin, and an internally flexibilized epoxy resin, and

b) a hardener component consisting essentially of a mixture by weight of:

30-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts,

5-45% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine,

0-15% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine,

0-15% unmodified or modified polyamide,

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator, and optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an accelerator;

wherein a reactive mixture of said resin component and said hardener component has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours; and

wherein after said resin component and said hardener component are mixed and reacted the cured epoxy adhesive has a tensile elongation at room temperature of greater than 30%, and wherein said resin component is free of nonylphenol and said hardener component is free of nonylphenol.

59. (Currently Amended) A process of adhering at least two substrate surfaces to each other comprising:

intercalating between said surfaces an adhesive comprising a reactive mixture of:

a) a resin component comprising a mixture of epoxy resin, and internally flexible epoxy resin, and

b) a hardener component consisting essentially of a mixture by weight of:

30-80% flexibilizer, wherein said flexibilizer is selected from amine terminated butadiene acrylonitrile adducts or carboxyl terminated butadiene acrylonitrile adducts,

5-45% unmodified aliphatic amine, wherein said unmodified aliphatic amine comprises an unmodified glycol ether base aliphatic amine,

0-15% modified aliphatic amine, wherein said modified aliphatic amine comprises an AEP base modified amine,

Art Unit: 1796

0-15% unmodified or modified polyamide,

1-10% accelerator, wherein said accelerator is a tertiary amine accelerator, and

optionally 5-20% plasticizer/accelerator that acts as both a plasticizer and an

accelerator; and

allowing said adhesive to cure,

wherein said reactive mixture has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours; whereby said cured adhesive has a tensile elongation at room temperature of greater than 30%, and

wherein said resin component is free of nonylphenol and said hardener component is free of nonylphenol.

DETAILED ACTION

Pending Claims

Claims 3-6, 10-16, 18-23, 26-33, 35-43, and 45-59 are pending.

Response to Applicant's Amendment

1. The rejection of claims 23, 31, 43, 49, and 53 under 35 U.S.C. 112, second paragraph, has been overcome by amendment.

Response to Arguments

2. Applicant's arguments, in light of Applicant's amendment, filed November 20, 2008 have been fully considered but they are not persuasive.

Applicant argued that the *consisting essentially of* language, with respect to the hardener component, distinguished the instant invention from the prior art. They argue that the prior art requires electrochemically absorbing materials and optional conductive carbon black in the hardener to facilitate short-time induction curing. In light of this, they argue that the claim language excludes electrochemically absorbing materials and optional conductive carbon black because the instantly claimed adhesive is not curable by induction heating.

Although Applicant makes a valid distinction between the instant invention and the prior art, the claim language of the independent claims fails to provide any curing parameters or characteristics indicating that the adhesive is not curable or cured by (short-time) induction heating. Accordingly, the Examiner suggested a modification to further distinguish the instant invention from the prior art adhesive.

Comments Regarding the Examiner's Amendment

3. The following is a summary of the changes set forth in the Examiner's amendment:
- Independent claims 55, 56, 57, 58, and 59 have been amended to include the following curing characteristics of the reactive mixture: *wherein said reactive mixture has an initial cure time of less than 3 hours and a complete cure time of approximately 24 hours*. This limitation, in concert with the *consisting essentially of* language of the hardener component, overcomes the prior art of record for the reasons discussed in pages 16-18 of Applicant's response. Specifically, the (non-induction) curing characteristics of the instant invention are now positively recited and distinguishable from the prior art. As a result, the *consisting essentially of* language of the hardener would not embrace the electromagnetically absorbing materials and optional carbon black of the prior art. The inclusion of these materials would have materially altered the now claimed curing properties.
 - Claims 2 and 25 have been canceled because their limitations are now featured in the independent claims.
 - Claims 20 and 22 have been amended to remove a curing limitation now featured in the independent claims.
 - Claims 23, 43, and paragraph 0017 of the specification have been amended to include a *modified* AEP aliphatic amine. This had been done to correspond with the modified AEP of the parent claims (see claims 58 and 59).
 - Claim 41 has been amended to feature 8-15% dinonylphenol. The previous range of 5-10% was not supported by the specification.

4. The rejection of claims 12, 22, 37, 58, and 59 under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) has been overcome by amendment.
5. The rejection of claims 10, 14, 35, 45, and 57 under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) in view of Martin (US Pat. No. 6,572,971) has been overcome by amendment.
6. The rejection of claims 2 and 25 under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) in view of Goel et al. (US Pat. No. 4,762,864) has been rendered moot by the cancellation of these claims.
7. The rejection of claims 4, 19, 20, 26, 28, 31, 32, 49, 50, and 53-56 under 35 U.S.C. 103(a) as being unpatentable over Wanthal (US Pat. No. 5,075,034) in view of Goel et al. (US Pat. No. 4,762,864) has been overcome by amendment.
8. The rejection of claims 3, 5, 27, and 29 under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Wanthal (US Pat. No. 5,075,034) and Goel et al. (US Pat. No. 4,762,864) in view of Martin (US Pat. No. 6,572,971) has been overcome by amendment.
9. The rejection of claims 47, 48, 51, and 52 under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Wanthal (US Pat. No. 5,075,034) and Goel et al. (US Pat. No. 4,762,864) in view of Cunliffe et al. (US Pat. No. 4,107,142) has been overcome by amendment.

Allowable Subject Matter

10. Claims 3-6, 10-16, 18-23, 26-33, 35-43, and 45-59 are allowed.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/
Primary Examiner, Art Unit 1796

February 24, 2008